Claims

1) A peptide (S33) containing 15-16 amino acids, comprising symmetrical dimethylated arginine (sDMA), that is able to react with antibodies which are present in sera from patients with systemic lupus erythematosus (SLE).
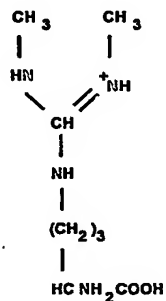
2) The S33 peptide according to claim 1 comprising the amino acid sequence AARG sdRGRGMGRGNIF.

3) A peptide according to claims 1 and 2 where the dimethylated arginine has the position 112 in the polypeptide sequence of SmD3.

4) The peptide according to claims 1 or 2 or 3, wherein the structure of the symmetric dimethylated arginine is

$$
\begin{array}{cc}
CH_3 & CH_3 \\
| & | \\
HN & {}^+NH \\
\diagdown & \diagup \\
& CH \\
& | \\
& NH \\
& | \\
& (CH_2)_3 \\
& | \\
HC\,NH_2COOH
\end{array}
$$

5) Use of a peptide (S33) containing 15-16 amino acids, comprising symmetrical dimethylated arginine (sDMA), that is able to react with antibodies that are present in sera from patients with systemic lupus erythematosus (SLE) for diagnosis of SLE patients.

6) Use of a peptide (S33) according to claim 5 for differential diagnosis to distinguish between SLE patients and patients with mixed connective tissue disease (MCTD).

7) Use according to claim 5, wherein the diagnosis is an in vitro diagnosis of SLE .

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8) Use according to claim 5, wherein said peptide is used for in vitro monitoring of the disease activity of dsDNA negative SLE patients.

9) Use according to claim 5, wherein said peptide is used for differentiation between

10   SLE and MCTD.

10) Use according to any of claims 5 to 9, wherein said peptide comprises the amino acid sequence
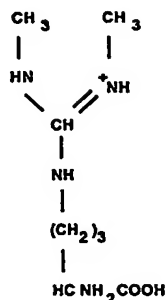   AARG sdRGRGMGRGNIF

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11) Use of a peptide according to any of claims 5 to 10 where the dimethylated arginine has the position 112 in the polypeptide sequence of SmD3.

12) Use of a multimer peptide comprising the peptide of claim 1.

13) Use according to any of claims 5 to 12, wherein the structure of the symmetric dimethylated arginine is

$$CH_3 \qquad CH_3$$
$$HN \qquad {}^+NH$$
$$CH$$
$$NH$$
$$(CH_2)_3$$
$$HC\,NH_2\,COOH$$

14) A kit for detection of antibodies, comprising a peptide (S33) of 15-16 amino acids of which one is a symmetrical dimethylated arginine (sDMA), and is able to react with said antibodies that are present in sera from patients with systemic lupus erythematosus (SLE).

15) A kit according to claim 14, wherein said peptide is used for in vitro diagnosis of SLE.
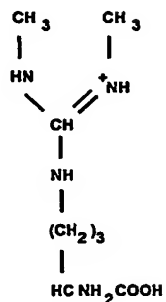
16) A kit according to claim 14, wherein, wherein said peptide is used for differential diagnosis to distinguish between SLE and mixed connective tissue disease (MCTD).

17) A kit according to any of claims 14 to 16, wherein said peptide comprises the amino acid sequence
        AARG sdRGRGMGRGNIF.

18) A kit for use of a peptide according to any of claims 14 to 17 where the dimethylated arginine has the position 112 in the polypeptide sequence of SmD3.

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19) A kit according to any of claims 14 to 18, wherein the structure of the symmetric dimethylated arginine is

$$
\begin{array}{c}
CH_3 \qquad CH_3 \\
| \qquad | \\
HN \qquad {}^+NH \\
\backslash \quad /\!\!/ \\
CH \\
| \\
NH \\
| \\
(CH_2)_3 \\
| \\
HC\,NH_2\,COOH
\end{array}
$$

20) A method for monitoring a disease activity comprising repeated testing to
5   follow the antibody titer in order to monitor the effect of treatment or the disease
activity.

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